



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

CW

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,960	06/20/2003	Mark W. Kiehl	1-24583	6584
27210	7590	01/21/2005	EXAMINER	
MACMILLAN, SOBANSKI & TODD, LLC ONE MARITIME PLAZA - FOURTH FLOOR 720 WATER STREET TOLEDO, OH 43604			COMPTON, ERIC B	
			ART UNIT	PAPER NUMBER
			3726	

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

10/600,960

Applicant(s)

KIEHL, MARK W.

Examiner

Eric B. Compton

Art Unit

3726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-12 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☐ Claim(s) 1-3 and 5-12 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 3 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 3 depends from claim 1. Claim 1 was amended by Applicant to provide the chock wave is created by rapidly advancing a piston. See Figure 4. Claim 3 however, is directed to the alternative embodiment in which the shock wave is created by discharging an electric arc. See Figures 2-3. Applicant does not disclose that the embodiments are useable together.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 6-7 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. 3,394,569 to Smith.

Regarding claim 6, Smith discloses a method for high velocity hydroforming tubular blanks, said method comprising the steps of:

- a. providing a die (15) having an internal die cavity (13);
- b. providing a tubular member (11) having an end;
- c. positioning said tubular member within said die cavity;
- d. filling said tubular member with a fluid (39);
- e. discharging an electric arc (at 55) within said fluid to create a shock wave within said fluid, thereby expanding said tubular member to conform to the shape of the die cavity; and
- f. feeding said end of said tubular member into said die cavity during the expansion of said tubular member to maintain a generally constant wall thickness. See Figure 1 (arrow showing feeding force 31); Col. 2, lines 67-70 & Col. 3, lines 5-8.

Regarding claim 7, Smith discloses the shock wave is created by discharging an electric arc within the fluid. See Col. 3, lines 61-63

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3726

6. Claims 1-2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith in view of U.S. Pat. 3,548,630 to Chelminski.

Smith discloses the invention cited above. However, the reference does not disclose forming the shock wave within said fluid by rapidly advancing a piston within a fluid cylinder in communication with said fluid to expand said tubular member to conform to the shape of the die cavity.

Chelminski discloses a method and apparatus for forming material by sudden impulses. "This invention is adaptable to form the material into, against, or around a die and is also adaptable for the various ways of forming materials, for example, such as bulging, stretching, compacting, extruding, drawing, sizing, expanding, or shrinking." Col. 1, lines 43-48. The reference discloses that it is an improvement over electrical discharge forming, like disclosed by Smith, which required high voltage and the wire must be replaced after each impulse. See Col. 1, lines 54-56. Instead, the reference teaching generating the impulses by rapidly advancing a piston (52) within a fluid cylinder (65) in communication with the fluid (30) to deform the workpiece (W). The apparatus can be adapted for use with present presses. Col. 2, lines 12-15.

Regarding claim 1, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have forming the shock wave of Smith within said fluid by rapidly advancing a piston within a fluid cylinder in communication with said fluid to expand said tubular member to conform to the shape of the die cavity, in light of the teachings of Chelminski; to avoid expendable parts, improve cycle time, apply consecutive impulses to progressive shape a workpiece. Col. 2, lines 1-12.

Regarding claim 2, Smith further includes a step of feeding an end of said tubular member into said die cavity during the expansion of said tubular member. See Figure 1 (arrow showing feeding 31); Col. 2, lines 67-70.

Regarding claim 5, Chelminski provides for an electromagnet (56) which advances the piston (52).

7. Claims 8 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. 5,890,387 to Roper in view of Smith.

Roper discloses a method of hydroforming tubular frame members, e.g., rails and space frames for vehicles using a die. Col. 4, lines 44-52. Such members are secured together to form a vehicle body. The number of such being specific to the prior art vehicle frame design to be formed. A simple box frame relies on four members. However, the reference does not creating a shock wave to deform the tubular members.

Smith discloses a method for high velocity hydroforming tubular blanks, said method comprising the steps of:

- a. providing a die (15) having an internal die cavity (13);
- b. providing a tubular member (11) having an end;
- c. positioning said tubular member within said die cavity;
- d. filling said tubular member with a fluid (39);
- e. discharging an electric arc (at 55) within said fluid to create a shock wave within said fluid, thereby expanding said tubular member to conform to the shape of the die cavity; and
- f. feeding said end of said tubular member into said die cavity during the

Art Unit: 3726

expansion of said tubular member to maintain a generally constant wall thickness. See Figure 1 (arrow showing feeding force 31); Col. 2, lines 67-70 & Col. 3, lines 5-8.

Smith discloses that by forming with a shock wave,

The shock wave so produced is utilized to deform a workpieces, usually in a die. By regulating the charge build up on the condenser bank, the deforming force created can be precisely controlled. Thus, the amount of force can be varied such that only the amount sufficient to produce a particular design shape will be applied to the workpiece.

Col. 3, lines 28-34.

Regarding claim 8, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed the tubular vehicle frame of Roper by using a shock wave, in light of the teachings of Smith, in order to precisely control the force needed to deform the tubular member.

Regarding claim 11, in Smith, the said shock wave is created by discharging an electric arc (at 55) within said fluid. See Col. 3, lines 15-28.

Regarding claim 12, Smith further includes a step of feeding an end of said tubular member into said die cavity during the expansion of said tubular member. See Figure 1 (arrow showing feeding 31); Col. 2, lines 67-70.

8. Claims 7 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roper in view of Chelminski.

Roper discloses a method of hydroforming tubular frame members, e.g., rails and space frames for vehicles using a die. Col. 4, lines 44-52. Such members are secured together to form a vehicle body. The number of such being specific to the prior art

Art Unit: 3726

vehicle frame design to be formed. A simple box frame relies on four members.

However, the reference does not creating a shock wave to deform the tubular members, in particular by forming the shock wave within said fluid by rapidly advancing a piston within a fluid cylinder in communication with said fluid to expand said tubular member to conform to the shape of the die cavity.

Chelminski discloses a method and apparatus for forming material by sudden impulses. "This invention is adaptable to form the material into, against, or around a die and is also adaptable for the various ways of forming materials, for example, such as bulging, stretching, compacting, extruding, drawing, sizing, expanding, or shrinking." Col. 1, lines 43-48. The reference discloses that it is an improvement over electrical discharge forming, like disclosed by Smith, which required high voltage and the wire must be replaced after each impulse. See Col. 1, lines 54-56. Instead, the reference teaching generating the impulses by rapidly advancing a piston (52) within a fluid cylinder (65) in communication with the fluid (30) to deform the workpiece (W). The apparatus can be adapted for use with present presses. Col. 2, lines 12-15.

Regarding claim 9, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed the tubular vehicle frame of Roper by forming a shock wave within a fluid by rapidly advancing a piston within a fluid cylinder in communication with said fluid to expand said tubular member to conform to the shape of the die cavity, in light of the teachings of Chelminski, to apply consecutive impulses to progressive shape a workpiece. Col. 2, lines 1-12.

Regarding claim 10, Chelminski provides for an electromagnet (56), which advances the piston (52).

Response to Arguments

9. Applicant's arguments filed November 12, 2004, have been fully considered but they are not persuasive.

Although, claim 4 was indicated previously as containing allowable subject matter, this matter is clearly taught by Chelminski. Applicant amended claim 1 to broaden it by changing "vehicle frame member" to "member." Thus, Applicant changed the scope of the claims.

With regards to claim 6, Applicant argues that Smith does not disclose "feeding said end of said tubular member into said die cavity during the expansion of said tubular member." This is not found persuasive. Smith discloses, "Simultaneously with the deforming of the workpiece, force is maintained on the lower plug 25 such that, in effect, material of the workpieces is force fed into the die cavity." Col. 2, lines 67-70.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Compton whose telephone number is (571) 272-4527. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris H. Banks can be reached on (571) 272-4419. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3726

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eric B. Compton
Primary Examiner
Art Unit 3726

ebc